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ABSTRACT

This document was written for junior and senior high school students to help them learn to cope more effectively with their problems. It is intended as a guide for helping adolescents explore and solve problems through constructive critical thinking. Ten steps in the process of constructive critical thinking are presented with personal and social examples and activities. These 10 steps are: (1) clarifying goals; (2) obtaining information; (3) identifying problems; (4) asking questions; (5) searching for answers; (6) predicting consequences; (7) making a plan; (8) practicing solutions; (9) evaluating results; and (10) noting progress. Common personal problems of young people are presented for critical analysis and discussion. Then, examples of how some famous persons dealt with different problems and concerns are described to offer the reader further challenges for exploring constructive critical thinking. Suggestions for practical applications of constructive critical thinking in real life situations are listed. This guide begins with a short pretest and concludes with a posttest on constructive critical thinking. (NB)

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CONSTRUCTIVE CRITICAL THINKING

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TEN STEPS TO EFFECTIVE PROBLEM SOLVING

by

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CONSTRUCTIVE CRITICAL THINKING

This is a book for young people who want to learn how to cope more effectively with their problems. Everyone has problems. We all worry about some problems more than others and would like to do something about them. If we really want to, we can solve most of our personal problems with some help from friends and others.

This book should be used as a guide for helping you to explore and solve your problems through constructive critical thinking. When we think about something our minds consider many different ideas. Critical thinking is the process of carefully examining and evaluating those ideas and their resulting actions. Constructive critical thinking consists of positive mental acts and strategies which enable us to productively solve many of our problems.

Some of the steps involved in constructive critical thinking include clarifying goals, obtaining information, identifying problems, asking questions, searching for answers, predicting consequences, making a plan, practicing solutions, evaluating results, and noting progress. All of these are considered in this book.

Each step in the process of constructive critical thinking is presented with personal and social examples and activities. Common personal problems of young people are presented first for critical analysis and discussion. Then, examples of how some famous persons dealt with different problems and concerns offer the reader further challenges for exploring constructive critical thinking.

The book begins with a short pretest and concludes with a posttest. When you have finished you should be able to apply most of these steps to the constructive critical thinking about many other kinds of problems in your life.

CONSTRUCTIVE CRITICAL THINKING

- Pretest -

1. What is constructive thinking?

2. What is critical thinking?

3. What is constructive critical thinking?

4. Why is constructive critical thinking important?

5. What are some of the steps in constructive critical thinking?

6. Give an example of your own attempts at constructive critical thinking?

7. On a scale of 1 (low) to 10 (high) how effective would you rate your own constructive critical thinking?

8. How might your constructive critical thinking be improved?

CONSTRUCTIVE CRITICAL THINKING

Ten steps

in

effective problem solving

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- CONSTRUCTIVE CRITICAL THINKING -

Constructive critical thinking consists of positive mental acts and strategies which enable us to productively solve most of our problems.

CLARIFYING GOALS

Determining priority objectives, aims, interests and values. "What do I want to do? Why"

> Think of three things: whence you come, where you are going, and to whom you must account.
>
> - Anonymous

INDEPENDENCE

For several months now Terry had been puzzled about what she should do after graduation. Now she had decided that, whatever she was going to do, she wanted to do without interference from her parents or relatives. She felt she had never had enough freedom, and the thought of doing her own thing in her own way really excited her.

"I am definitely going to move into my own apartment as soon as possible," said Terry to herself. Then she began to dream about how the apartment might look and what she could do with a place all to herself. As she was dreaming about what her new life might be like, she resolved to move within the next few weeks.

Then she stopped and thought, "How can I do it in just a few weeks? What must I do to make it all possible?" There were so many questions and things to think about that she felt overwhelmed and almost began to cry.

What was Terry's goal?

Do you think she was taking the proper action and "on the right road" to achieve her goal?

If you were Terry, how might you plan to achieve your goal?

Complete these sentences:

I wish

Ten years from now

A happy person is

Someday I would like to

If I knew I were going to die soon

My daydreams are

My ideal is

The most important thing for most people is

Tomorrow

I really hope

The place for me to start is

ROSA PARKS & MARTIN LUTHER KING JR.

On December 1, 1955 Rosa Parks, a black seamstress and active member of the National Association for the Advancement of Colored People, refused to give up her seat to a white person on a bus in Montgomery, Alabama. Because she had defied the city's segregated transportation ordinance she was arrested and put in jail.

Her arrest sparked a boycott of buses which lasted 382 days. Many black persons who opposed voter discrimination and segregation laws began to talk of using violence to change things.

As pastor of the Dexter Avenue Baptist Church, Martin Luther King, Jr. joined with other community leaders to organize a peaceful boycott. King was chosen as leader of the Montgomery Improvement Association and became a powerful spokesman for nonviolent action and peaceful resistance to injustice.

Martin Luther King headed the civil rights movement which began with Montgomery and spread throughout the country. In 1963 over 200,000 persons demonstrated at the Lincoln Memorial in Washington, D.C. King was awarded the Nobel Prize for Peace in 1964. He went on to stand against the Vietnam war, to work for the poor of all races, and to bring about social justice.

In a famous speech King said "I have a dream that my four little children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character." King did not live to see his dream come true as he was murdered by a white sniper in Memphis, Tennessee on April 4, 1968.

- - -

What goals did Rosa Parks and Martin Luther King have in common?

How successful were they in reaching their goals?

What strategies did they use that helped them to move toward their goals?

What else do you know about Rosa Parks & Martin Luther King, Jr.?

What are some things you would like to do in the immediate future?

What are your long-range goals or aspirations?

What is the most important goal in your life?

What is your major educational goal? Why?

What are some important things in school you would like to learn this year?

1.

2.

3.

What goals and expectations does your family have of you?

My Goal Record

My name is _____

* My **goal** is to be able to _____

_____

* My goal is **important** to <u>me</u> because _____

_____

_____

* I would like to achieve my goal by this date: _____

* Where am I now?

I am already able to _____

_____

_____

The biggest problem I might have in reaching my goal is _____

_____

_____

I think I can overcome this problem by _____

_____

_____

OBTAINING INFORMATION

Acquiring and previewing relevant knowledge, facts and opinions. "What are my sources of information?"

Get the facts first and then you can distort them as much as you please.

- Mark Twain

LOST FRIENDS?

Tim felt lonely. He had just called several friends to plan something for Friday night, but everyone was busy with other plans. Now that he stopped to think about it, he remembered that none of the gang had called him for a week or so. He had even gone to the school dance all by himself, and no one had talked to him.

"I'm definitely being ignored and getting the cold treatment from the guys," Tim said to himself. Then he thought about Sam who had always been his best friend, and he began to wonder why he had not heard from him. "If Sam doesn't call me soon, something must be wrong," he pondered. Then Tim thought, "I wonder why they don't want me around?"

What did Tim need to know?

How could he obtain the information he needs?

What else might Tim do to answer his own question?

What would you do if you were Tim?

List the best sources of information for obtaining the facts about-

The latest football or basketball scores:

The weather:

How to get married:

How to apply for a special job:

Opportunities in the military service:

What apartment to rent:

A good restaurant:

The best "fair price" for a new car:

Graduation requirements:

Where to go fishing:

How to get a special date:

How to fix your car:

Where to get a part-time job :

STEVE JOBS

Steve Jobs was an orphan boy adopted by a family in Mountain View, California. He was very unhappy in school and almost dropped out in the seventh grade. In high school he took an electronics class where his teacher noticed he "had a different way of looking at things." Steve liked to tinker with special projects using materials from a local electronics firm where he also worked during the summer.

When he graduated from high school in 1972, Steve went to college. After one semester he left school and worked in a variety of different jobs. Then he became a video game designer and joined a home computer club where he recognized the need for a new kind of machine that could quickly and easily provide information for the average person.

He designed the new computer in his bedroom and constructed it in his garage. With $3100. from the sale of his car he went into business with a friend and started production of the Apple computer - which he named after an apple orchard he once enjoyed working in.

Steve Jobs hired many other creative young persons to design new programs and ways of processing information. He continued to improve his products and produced the MacIntosh and other machines which help set the standards for home and personal computers.

- - -

Why is the Apple computer so widely used in homes and schools?

What kinds of useful information can be stored in computers?

Where can you obtain information about computers and computer libraries?

What else do you know about Steve Jobs?

Describe a goal that you are currently working toward achieving:

What information do you need to help you achieve your goal?

Where can you obtain the necessary information?

Who might help you obtain the information?

How do you usually obtain your information?

What are some unreliable or faulty sources of information you have used in the past?

What are some good sources of information about -

personal goals and problems?

employment and job goals?

school assignments?

IDENTIFYING PROBLEMS

Pinpointing possible difficulties, issues, concerns and assumptions. "What is the major problem to be solved?"

The important thing about a problem is not its solution, but the strength we gain in finding a solution.

- Anonymous

STEREO

John had worked and saved for a long time in order to buy the components for his new stereo hi-fi set. Now he finally had everything he needed for a fine music system. Eagerly he began to assemble and test the components. Then he heard the sound and realized he was not getting any stereophonic effect.

Quickly he checked his connections to make sure they were secure, but again there was no stereo sound. Now he was feeling frustrated as he disconnected the set and started over. He knew he was doing the job right as he put it back together again exactly as before. But when the stereo still failed to come on he began to feel angry and then he banged it hard with his fist. "That might do it," he thought, as he prepared to test it once more.

What was John's problem?

What else might John have done to attempt to get stereophonic sound from his set?

How does being stubborn interfere with problem solving?

Identify a common problem that many people experience -

With friends:

At work:

With relatives:

At school:

With parents:

With themselves:

JONAS SALK

For centuries, people had suffered from a disease that left them crippled and caused death which was named poliomyelitis. It was frequently contracted during a bad cold and proved very infectious with children. The disease attacked the gray matter of the spinal cord and resulted in acute paralysis of the body. Sometimes polio victims had to be placed in "iron lung" machines to help them breathe and stay alive.

Jonas Salk was a young scientist who, as a bacteriologist, studied very small microorganisms in his laboratory. He was most interested in the problem of what caused polio and how it might be prevented. Salk began to experiment with modifying the infectious virus from patients who had the disease.

Finally, in 1954, Dr. Salk produced a vaccine from the virus which proved successful. Then he created the Salk Vaccine which could be taken by mouth in the form of a colored sugar cube. Almost immediately doctors throughout the world began to use the new vaccine and the dreaded polio came under control.

Jonas Salk became an international hero for the millions of lives he had saved. He continues to work and conduct experiments at the Salk Institute in California which he has dedicated to solving some of our major health problems.

- - -

How did Jonas Salk identify the problems in preventing polio?

How might people still get poliomyelitis?

What are some of the major problems today in preventing polio and other diseases?

What else do you know about Jonas Salk?

Complete these sentences:

The major problem in my life right now is :

Our major family problem right now is :

One of the big problems in my community is :

One of the big problems in the world is :

What I am really most concerned about is :

ASKING QUESTIONS

Developing several key questions about the issue and available information. "What crucial questions need to be answered?"

> Keep on asking and you will
> keep on getting;
> Keep on looking and you will
> keep on finding.
>
> - Luke 11:9

WHERE TO TURN?

Nancy had missed two periods before she realized that she must be pregnant. She was hysterical with fear and had spent most of the last week alone in her room crying and wondering what to do next. The last thing she ever wanted to be was a mother at 17!

Mike hadn't called back since she told him a week ago. This hurt most of all! She felt it was his fault, too, and he wouldn't even talk to her about it. She was completely alone but knew she had to talk to someone or she'd go crazy.

"Is it too late for an abortion?" "What will my parents do?" "What will my friends say?" "What would I do with a baby?" "Why did Mike desert me when I needed him most?" All these questions kept running through Nancy's mind. In desparation, her inner voice screamed, "Oh, help me. . .Someone please help me!"

What were some of Nancy's problems?

What other questions could be asked about Nancy's problems?

What are some possible ways of finding the answers to the questions?

Write two questions about each of the following concerns-

Mike failed his drivers license test:

Susan usually fell asleep during English class:

The space shuttle Challenger blew up after launching:

Tim lost his job:

Mary's mother seemed to be unusally upset with her:

Nuclear waste was poisoning the water supply.

The young man was shot on the porch of his home by police:

The company cut the wages of its workers by ten percent:

SAMANTHA SMITH

In April of 1983 a fifth-grade girl from Manchester,Maine wrote the following letter to Chairman Yuri Andropov of the Soviet Union:

Dear Mr. Andropov:

My name is Samantha Smith. I am ten years old. Congratulations on your new job. I have been worrying about Russia and the United States getting into a nuclear war. Are you going to vote to have a war or not? If you aren't please tell me how you are going to help to not have a war. This question you do not have to answer, but I would like to know why you want to conquer the world or at least our country. God made the world for us to live together in peace and not to fight.

Sincerely
Samantha Smith

Mr. Andropov replied by stating that the Soviet Union did not want to conquer the world and he invited Samantha to visit Russia in the summer so she could meet children her age, tour the country and see for herself that "everyone in the Soviet Unionstands for peace and friendship among nations."

Samantha did visit Russia where she met and talked with many children and other persons. She personally established friendship with numerous Soviet children and stimulated thousands of persons to become pen-pals and international friends who visit with each other.

In August of 1985 Samantha died in a plane crash with her father and some friends. They had been returning from a meeting to help establish international understanding, peace and friendship.

- - -

Do you think that Samantha should have written a letter asking Mr. Andropov those questions?

What happened to her as a result of asking those questions?

What effect did her letter and questions have on other people throughout the world?

What else do you know about Samantha Smith?

Complete these sentences:

Three questions I need to answer about my latest homework assignment are :

1.

2.

3.

A key question about a story I am reading is :

Some questions I have about what is going on in the world are :

Some questions my parents ask me are :

Some questions my friends ask me are :

The most important question at this time is :

CONSTRUCTIVE CRITICAL THINKING: Step 5

SEARCHING FOR ANSWERS

Reading and looking for clues, analyzing data, listing possible answers. "Where might some answers be found?"

> He who seeks finds,
> and to him who knocks
> it will be opened.
>
> - Matthew 7:8

PLAYBACK

As Steve watched the playback film of the last basketball game, he couldn't believe his eyes. Was it really him that was making all of those mistakes? After all, he was the first string forward with an outstanding record. And, although his team had lost the game by only 3 points, he had tried hard to win.

The last game was unbelievable. As he made foul after foul, he recalled the coach's words to "get hold of himself." And then he saw himself denying his fifth foul and swearing that the officials had made a mistake. But there he was on the film, holding his man tightly with his own two arms. Why couldn't he even remember that he had actually done it?

What question was Steve trying to answer?

How was Steve searching for the answer to his question?

What else might Steve do that would help him answer his question?

What are several possible reasons why Steve could not remember committing his fifth foul?

How might you search for answers to the following problems?

Losing a friend:

1.

2.

3.

Always feeling sick and tired:

1.

2

3.

Discovering who was at fault in an automobile accident:

1.

2.

3.

Why your house was robbed :

1.

2.

3.

A friend's suicide:

1.

2.

3.

How your house caught on fire :

1.

2.

3.

MICHAEL JACKSON

When he was a child, Michael Jackson began singing and dancing with his brothers. Because of his talent and unique style he quickly became very popular. As a famous musician he had been tempted by easy access to drugs and alcohol. But Michael noticed that many stars had ruined their careers by becoming addicts and he rejected the use of abusive substances.

By the time that he was a young man Michael had sold millions of records and videotapes. He won many prizes and awards for his performances such as the ground-breaking "Thriller." Michael also made big donations to charities and tried to help less fortunate persons deal with their problems.

When a great drought caused a terrible famine in Africa, thousands and thousands of people began to die every day. Very young children were especially vunerable and suffered greatly. Many persons and organizations throughout the world began to search for answers to how they might lessen the results of the famine.

Some people and countries gave food, others gave money, and some volunteered to help in other ways. In the United States a large group of musicians, including Michael Jackson, donated their time to produce the recording "We Are The World" which raised millions of dollars for children in Ethiopia.

- - -

What were some of the things that helped Michael Jackson become a successful musician?

What are some of the causes of famine?

Why was "We Are The World" a very popular recording?

What else do you know about Michael Jackson?

Provide an example for each of the following methods of searching for answers to why the space-shuttle Challenger blew up shortly after launching-

Carefully observing videotapes of the launching:

Analyzing data:

Reading instructional manuals:

Looking for other clues:

List three ways you might go about searching for answers to a problem you are concerned with:

Description of the problem:

Ways of searching for answers:

1.

2.

3.

PREDICTING CONSEQUENCES

Imagining alternative solutions, considering possible advantages and disadvanteges. "What action appears to be most advantageous?"

> Results are what we expect;
> consequences are what we get.
>
> - Anonymous

ANOTHER TICKET

There was nothing more enjoyable to Susan than driving her car down the road. She felt great as she turned on the ignition and stepped on the gas. Her car responded quickly and smoothly as it slipped into second gear and increased in speed. Susan felt a thrill of excitement as the wind blew across her face.

Then she saw the flashing red lights behind her and the officer motioning her to pull over. "Oh, no," she thought, "Not another ticket!" Then, when the officer came over to her, she recognized him as the one who had given her a ticket just three days ago.

What was Susan's problem?

What are some of the possible causes of Susan's problem?

What are some of the consequences of her actions?

Describe two other ways that Susan might have acted and the possible consequences of those actions:

1.

2.

List some consequences for each of the following situations:

In many families children watch television seven hours a day - much of it having to do with violence.

During the Ethiopian famine in Africa some Americans and people from other countries actually went there to help out with food and supplies.

Many professional athletes have been using illegal drugs.

In the past few years the National Debt for the United States has grown to over 200 billion dollars.

A ten year old girl from Maine, Samantha Smith, went to the Soviet Union to visit and started many "pen pals" and enchanges between Soviet and American citizens.

In some countries people have been prevented from voting.

A nuclear war begins accidently.

Mr. Lee opened a small business for himself.

JUDITH RESNIK & CHRISTA McAULIFFE

When Judith Resnik was a girl, she became interested in science and problem solving. Although it was very unusual for a young woman, Judith went to college and became an electrical engineer with a doctor's degree. Then she decided she would like to become an astronaut and contribute to the development of space travel and exploration.

Another young woman, Christa McAuliffe, who was a high school social science teacher, had also become interested in the space-shuttle program. When it was announced that a teacher would be selected as a crew member for the Challenger, Christa applied and was eventually chosen for the position. She was to be the first teacher to give lessons to students from an orbiting spaceship. During an interview, Christa said "I reached for something that was way beyond my grasp, I felt, but I wasn't afraid to try for it and I wasn't afraid to accept failure."

Both Judith and Christa were married with young children. They knew that becoming astronauts was a risky business since several persons had been killed in earlier space launchings. Then, on January 28,1986, the space-shuttle Challenger blew up shortly after its launching at Cape Canaveral Florida. All seven astronauts, including Judith and Christa, were killed.

Subsequent investigations indicated that something happened to start a flame that caused the hydrogen fuel tank to explode. It was also discovered that several engineers had noticed problems in the shuttle and the weather and had tried to prevent the launching from taking place.

- - -

What consequences do you think Judith and Christa might have considered when they decided to become astronauts?

To what extent can we predict the consequences of our actions?

Do you think that space flight explosions can be prevented? How?

What else do you know about Judith Resnik and Christa McAuliffe?

What might happen if -

you found a money bag with $10,000. in it?

you fail to change the oil in your car?

you fail to follow the boss's instructions at work?

you consistently overspend your allowance or income?

you fail to keep your date with your friend?

you always wait until the last minute to do your homework?

you are mean to your pet?

you don't pay your taxes?

you don't do your share of the work at home?

MAKING A PLAN

Choosing a model course of action, designing an experiment, organizing time and resources. "How should I proceed step-by-step?"

> A wise man thinks ahead; a fool doesn't and even brags about it !
>
> - Proverbs 13:16

STARTING POINT

When Paul Brown saw the 'Trainees Wanted' sign in front of Mr. Thompson's construction firm, he really felt excited. "Maybe this is my chance for a good job," he thought. He had always liked to build things, and the idea of a construction job turned him on.

He was glad to find Mr. Thompson is his office and willing to talk to him. Paul had known Mr. Thompson from the time his firm had supported Paul's baseball team with new uniforms. "What kind of a job do you want?" Mr. Thompson asked. "We have several openings for fellows interested in electrical work, carpentry, drafting, and even plumbing; but you have to make a choice as to where you want to start and what you would really like to do."

Paul had not really thought about it much. Now he felt it was important to select a trainee job that he could really get interested in. "How should I answer Mr. Thompson's questions?" he wondered.

How might Paul proceed to make up his mind?

How could Paul find out which trainee job he would prefer?

What would be a good plan for you to follow in applying for a job?

First I would -

Then I would -

Next I would -

Finally I would -

Outline a step-by-step plan for accomplishing the following:

A three day fishing trip:

A graduation party:

Building a dog house:

Purchasing a new motor-bike:

Visiting friends in another state:

Writing a story about space travel to Mars:

Get a date with a new boy or girl friend:

ABRAHAM LINCOLN

In 1809 Abraham Lincoln was born in a Kentucky log cabin. His father, Thomas Lincoln, was a father and carpenter without much education. When Abe was eight years old he was given an axe and helped to build a new cabin. As he grew older he became an expert axman and accustomed to the hard outdoor life of farm work.

Lincoln's mother died when we was a boy. Abe worked on the farm and had less than a year of formal education. Later he wrote that "when I came of age I did not know much. Still somehow I could read, write, and cipher to the rule of three; but that was all."

But Lincoln was determined to make his life worthwhile. He read much and educated himself. He became a storekeeper, post-master and soldier. Then he studied law on his own and began to run for public office where at first he suffered defeat and failure.

Then Lincoln made a plan to become president of the United States and after much frustration he was finally elected. As president he worked to save the union from dissolution, to free the slaves, and to reunite the country after the Civil War.

Lincoln was convinced of the importance of self-direction and responsibility. He said "If we could first know where we are and whither we are tending, we could better judge what to do, and how to do it." His advice to others was to "always bear in mind that your own resolution to succeed is more important than any other one thing."

- - -

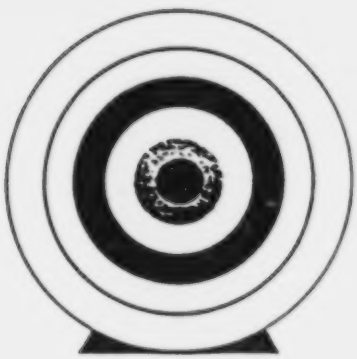
To what extent can a person educate oneself?

What might be involved in a plan to become president of the United States?

To what extent do you agree with Lincoln's advice to others?

What else do you know about Abraham Lincoln?

What Do I Do Next?



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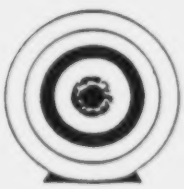

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* My goal is to be able to _____

_____

I will start achieving my goal by doing the following things:

First I will _____

_____

_____

Then I will _____

_____

_____

And then I will _____

_____

_____

I believe I need help with _____

_____

PRACTICING SOLUTIONS

Applying skills and knowledge, visualizing and rehearshing model solutions, verbalizing self-directed exercises.
"What needs to be practiced?"

'Tis a lesson you should heed
try, try again
if at first you don't succeed
try, try again !

- William Edward Hickson

REAL DIFFERENCES

When Susan moved to her new town, she was placed in Mrs. Allen's tenth-grade English Class. The first day of school was a real surprise to Susan, as she had never seen so many different people in one class before.

Of the 29 students in her room, 10 were oriental, including 2 who had just arrived from Cambodia. There were also 8 white students, 6 blacks, 4 Mexican-Americans,and 1 real American Indian.

Everyone seemed to talk differently about strange things and Susan found it hard to make any friends. Then she was asked to join a gang and pay money for her "protection." Susan was upset because most of the students she really liked were not gang members.

What were some of Susan's problems?

Discuss several possible solutions for each problem.

What do you think might be the best solution for the "gang problem"?

What would be some of the difficulties in practicing the solutions you have proposed?

Visualize and describe how you might best rehearse and practice some solutions to the following problems:

Balancing your checkbook:

Improving your athletic or game performance.

Getting along with people of different races and religions:

Learning to drive a new manual-shift car:

Being told by your boss that your work is not up to "standard":

Discovering and correcting errors on your math papers:

Being asked at a part to take some drugs:

CORAZON AQUINO

For many years Ferdinand Marcos was a corrupt and dictatorial president of the Philippines. Citizens who called for reform were imprisoned or killed. When Corazon Aquino's husband was assassinated while working against Marcos she decided to become involved even though her own life was threatened.

Mrs. Aquino campaigned for the presidency urging the people to vote for a peaceful change in the government. Marcos tried to win by stuffing the ballot boxes and buying illegal votes. When it was clear that Mrs. Aquino had won theelection Marcos refused to hand over power.

Then Mrs. Aqunio called for massive nonviolent demonstrations. Thousands of people took to the streets and were supported by leaders of the Roman Catholic Church and the business community. When military leaders and soldiers joined with the people, Marcos fled the country and Corazon Aquino assumed the full power given to her by the voters in the election on February 7, 1986.

When Mrs. Aquino first called for a nonviolent campaign of protests, strikes and boycotts many people did not believe this was a practical solution to the problem of removing Marcos. But Corazon Aquino proved that peaceful action and resistance can effectively change governments.

- - -

What were some of the things that contributed to Corazon Aquino's decision to become politically involved?

What would you have proposed as some other solutions to the problem?

Why do you think that Mrs. Aquino's solution was successful?

What else do you know about Corazon Aquino?

TEAM THINKING

Form teams and take turns solving these problems. Stop and think carefully before you answer!

1. How old do you have to be to be Chinese?
2. If you take two apples from three apples what do you have?
3. Why are clouds always changing their shape?
4. Do elephants have uncles?
5. A farmer had 17 sheep. All but 9 died. How many did he have left?
6. What was Abraham Lincoln's favorite television program?
7. Why can't a person living in Chicago, Illinois be buried west of the Mississippi River?
8. Is it legal for a man to marry his widow's sister?
9. A person has two coins whose total value is 55 cents and one of them is not a nickel. What are the coins?
10. How far can a dog run into the woods before he starts to run out?

- Upsidedown Answers -

1. Any age will do if you were born in China.
2. Two apples.
3. Because of wind and temperature variations.
4. Yes. They also have nephews, cousins and aunts.
5. 9.
6. None - because TV had not yet been invented.
7. Living persons are not buried.
8. Dead men can't marry.
9. One is a fifty cent piece, the other coin is a nickel.
10. Half way before he starts to run out.

EVALUATING RESULTS

Judging achievement and success, finding errors and mistakes, drawing conclusions and inferences. "How effective was I?"

> The trouble with most folks isn't so much their ignorance as knowing so many things that ain't so.
>
> - Josh Billings

ONE MORE TRIP

Lennie was really scared this time. He was worried sick about Bill and didn't know what to do. It all started a couple of years ago when he and Bill had tried some drugs together. It was fun for awhile, but Bill talked him into dropping acid last year and he had a trip that was a real bummer.

That experience convinced Lennie to quit, but Bill went on without him. Then other friends had dropped Bill because he seemed really freaked out most of the time and was acting real weird.

Lennie couldn't convince Bill to stop! He knew Bill needed help, yet Lennie didn't want to betray his friendship to Bill. He was afraid Bill was blowing his mind on LSD—what could he do? Who could he turn to?

What was Lennie's problem?

What might be some of Bill's problems?

How effective are drugs for solving problems?

What might have been a more positive way of dealing with Bill's problems?

Describe a successful solution to one of your problems:

Problem:

Successful Solution:

Describe an unsuccessful solution to one of your problems:

Problem:

Unsuccessful Solution:

Describe several ways you can evaluate the results of something that you have done:

How would you evaluate the effectiveness of:

A family rule:

A new computer:

A professional basketball team:

A law regulating speed limits:

THOMAS EDISON

As a child, Tom Edison liked to spend time tinkering with things to find out how they worked. He had great difficulty in school as he was a poor speller and found it hard to express himself in words; his teachers felt he was lazy and failed to apply himself to his work. But at home Tom would spend hours conducting experiments in his workshop.

Although Tom dropped out of school when he was young he continued to tinker and began to invent things. Then he established his own business and hired people to help him. Many times he failed in what he was trying to do but he would persist with a new approach until something finally worked. For example, Edison said "I finally learned 287 ways not to build an electric light bulb." However, on his next experiment he was successful!

Tom Edison became America's most famous inventor with hundreds of patents in his name. Besides the electric lamp he created the phonograph and the microphone. He continued to invent things even when he was a deaf old man. Edison is also remembered for his famous statement that "genius is one percent inspiration and ninety-nine percent perspiration."

- - -

What happened to Tom as a result of his many failures in trying to invent the electric light bulb?

What are some of the implications of Edison's famous statement about "genius"?

What are several different ways of evaluating the results of an experiment you have tried?

What else do you know about Tom Edison?

My name is _____

- Behavior -	- Dates -											
PAYING ATTENTION												
COMPLETING ASSIGNMENT												
CORRECTING MISTAKES												
SELF DIRECTION & CONTROL												

*Record: Good = 2
Fair = 1
Poor = 0

NOTING PROGRESS

Recording and rewarding accomplishment, correcting errors, generalizing results, changing goals and continuing experiments. "Where should I go from here?"

> Progress is not an accident, but a necessity . . . it is part of nature.
>
> - Herbert Spencer

THROUGH THE UNIVERSE

They had been gone from Earth for exactly 5 months. Of course they had spent 6 weeks on the moon station refueling for the long flight to Venus. This was the eighth expedition to make the trip to the new Earth colony on Venus.

Brad felt like a pioneer as he looked out of the windows of the spaceship at the bright stars surrounding him in the universe. Then Osako came through the door and reminded him of the 10 other persons from different nations who had volunteered for this flight.

It had taken a long time to achieve international space flights like this one. Brad thought about some of the early space travelers who had been killed in the process of developing his spaceship. He wondered if it had been worth it and what would happen to him on Venus.

Why was Brad going to Venus?

Who were some of the early space travelers who have been killed in faulty launchings of space vehicles?

What might happen to Brad on Venus?

What are some of the values or possible benefits of space travel and exploration?

Describe the progress you have made toward three goals:

Goal 1:

Goal 2:

Goal 3:

How has your progress been noticed and rewarded?

What might you do to continue and improve your progress?

Who might be of help to you in furthering your progress?

BENJAMIN FRANKLIN

When Ben Franklin was ten years old he became apprenticed as a printer's helper. Over the next few years he learned a great deal and became an outstanding printer. As a young man he published a book of proverbs called Poor Richard's Almanack which made him well known. One of his famous proverbs is "well done is better than well said."

Then Ben got interested in bettering his community. He organized the first police force and the first fire company in the American colonies. He also invented the lightning rod and the iron stove. Later in his life he became Postmaster General, took an active part in the American Revolution and was the ambassador to France.

Ben Franklin was always concerned with self-improvement. He developed a method of listing the desirable things he was trying to do and noting how much he had accomplished in a little notebook. He discovered that if he worked on his faults one at a time he could fix them. His personal records showed that by noting his slow but steady progress every day he was able to achieve most of the goals he had set for himself.

Ben often repeated the proverb: "Being ignorant is not so much a shame, as being unwilling to learn." Among other things, Franklin cleverly demonstrated the importance of self-recognizion and reward for making personal progress.

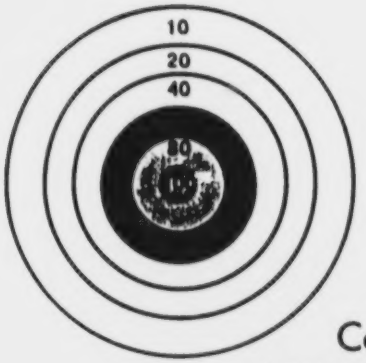
- - -

What were some of the things you think Ben Franklin may have learned as a young apprentice?

How did he determine the progress he was making toward his goals?

Give an example of what one of his proverbs might mean:

What else do you know about Ben Franklin?



My Progress Record

My **goal** is to be able to _____

_____

Color in your progress as you move toward your goal.

100 Excellent!										
80 Great!										
60 OK										
40 Some Progress										
20 Very Little Progress										
0	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Recording dates										
Scores										

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SUMMARY

- CONSTRUCTIVE CRITICAL THINKING SKILLS -

1. CLARIFYING GOALS: Determining priority objectives, aims, interests and values. "What do I want to do? Why?"

2. OBTAINING INFORMATION: Acquiring and previewing relevant knowledge, facts and opinions. "What are my sources of information?"

3. IDENTIFYING PROBLEMS: Pinpointing possible difficulties, issues, concerns and assumptions. "What is the major problem to be solved?"

4. ASKING QUESTIONS: Developing several key questions about the issue and available information. "What crucial questions need to be answered?"

5. SEARCHING FOR ANSWERS: Reading and looking for clues, analyzing data, listing possible answers. "Where might some answers be found?"

6. PREDICTING CONSEQUENCES: Imagining alternative solutions, considering possible advantages and disadvantages. "What action appears to be most advantageous?"

7. MAKING A PLAN: Choosing a model course of action, designing an experiment, organizing time and resources. "How should I proceed step-by-step?"

8. PRACTICING SOLUTIONS: Applying skills and knowledge, visualizing and rehearsing model solutions, verbalizing self-directed exercises. "What needs to be practiced?"

9. EVALUATING RESULTS: Judging achievement and success, finding errors and mistakes, drawing conclusions and inferences. "How effective was I?"

10. NOTING PROGRESS: Recording and rewarding accomplishment, correcting errors, generalizing results, changing goals and continuing experiments. "Where should I go from here?"

PRACTICAL APPLICATIONS

The constructive critical thinking skills presented in this book have been summarized on the preceeding page. Now you should practice applying the ten steps in constructive critical thinking to real life problems such as those listed below:

Making new friends

Completing school assignments

Avoiding fights and resolving conflicts

Training for a new job

Fixing something that is broken

Joining a club, church, or organization

Preparing for college

Getting on a team

Writing a term paper or report

Voting in an election

Joining a military service

Renting an apartment

Volunteering time and money

Purchasing an automobile

Serving on a jury

Changing jobs or employment

Preparing for marriage

Other:

Select one of the above concerns and discuss with others how you would apply each of the ten steps in constructive critical thinking.

CONSTRUCTIVE CRITICAL THINKING

- Post Test -

Instructions: Read and check your response for each of the following items. Write a brief example for each response. Total your score including 5 points for each example provided.

	1 Seldom	2 Occasionally	3 Sometimes	4 Frequently	5 Always
1. I clarify my goals and objectives before beginning important tasks. Example:					
2. I know where and how to obtain the information I need. Example:					
3. I can identify my major problems. Example:					
4. I ask myself key questions concerning what I am trying to accomplish. Example:					
5. I carefully study and analyze available data in order to answer my questions. Example:					
6. I try to predict the consequences of alternative courses of actions available to me. Example:					
7. I make a plan for solving my problems. Example:					
8. I rehearse and practice model solutions for my problems. Example:					
9. I evaluate the effectiveness of my actions. Example:					
10. I correct my errors and reward my continued progress. Example:					

My total score:

90 -100 Excellent
80 - 89 Good
70 - 79 Fair
60 - 69 ????
50 - 59 Poor